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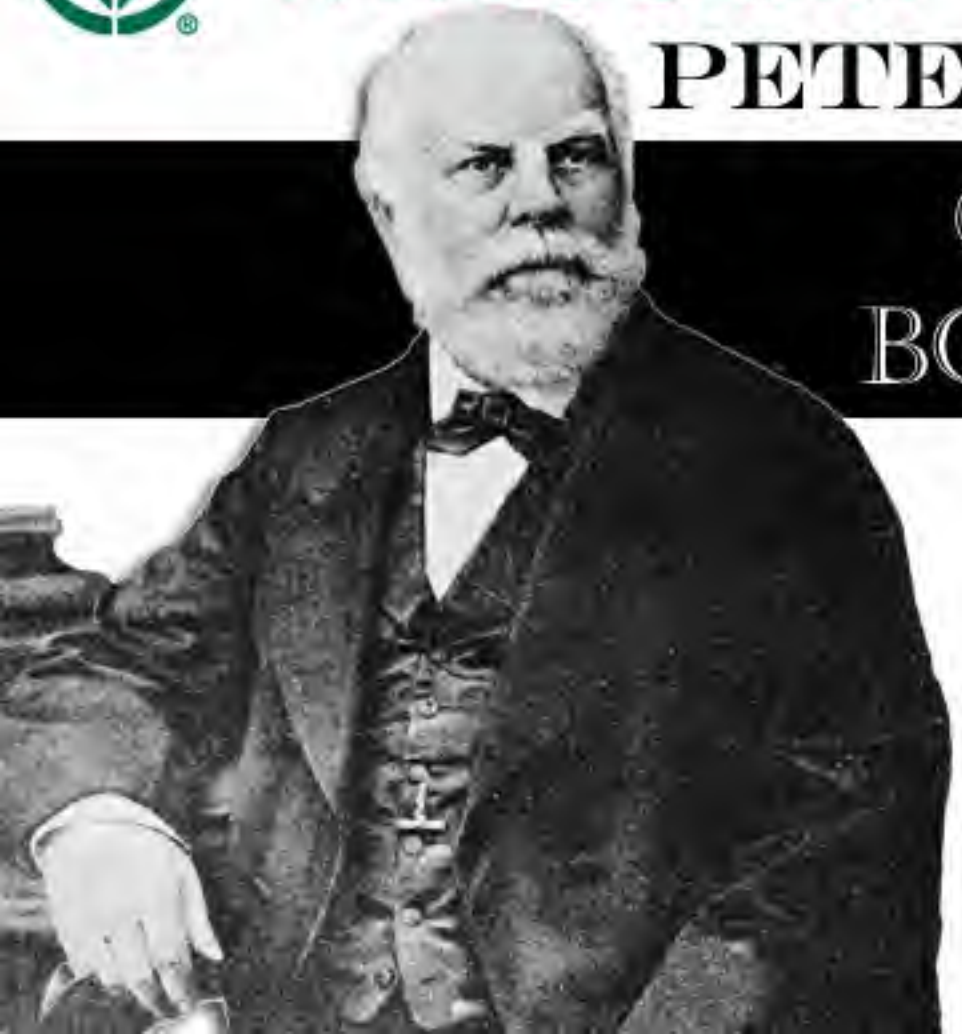


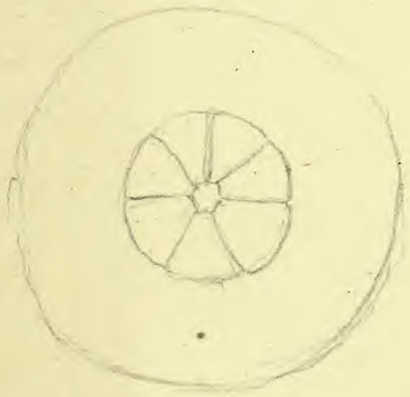
Pagination Note:
Since many of the items lack a specific page number, the page number displayed online refers to the sequentially created number each item was given upon cataloging the materials.

Abies magnifica

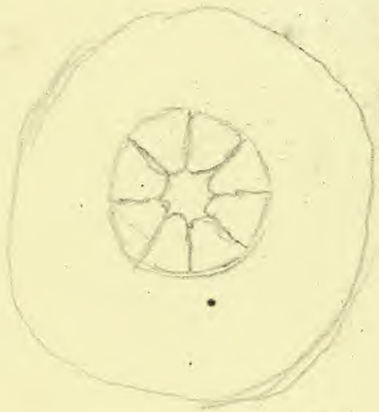
Oct 15 1878

(dry & soaked)

section of Embryo
and albumen ×10



7 Cotyl



8 Cotyl.

cotyledon 2 mm long

Cult Cambridge tip of cotyledon
1876 ×10

Hort Cambridge
1876

×10

one of the first very small leaves, 8-15 mm long
obtuse or acute

section of one of the first obtuse leaves ×30
soaked

sect of Cotyledon
×30

section of acute axis leaf

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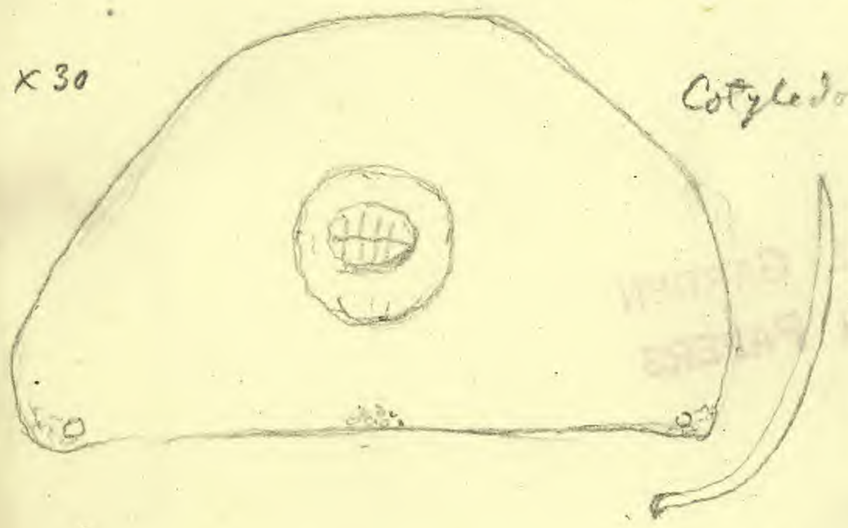
Abies magnifica
Sierra, seedling Oct 1880
Seventh old

April 1st 1881

cotyledons still green
- part



Cotyledon

edge × 150
strengthening cells abundant
- angles but very thin walled
also some stouter cells
at middle dorsal side

leaf of same

×30

scarcely a few cells
around stoma, none
on keel

Tip × 30

upper

lower

side
little cuticle stomata

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Smith & Criss
DRUGGISTS
Corner Fifth and Market Streets

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July 21 1878

x10 A Coniselor for Ketch

mixed by A Douglas
Waukegan, Ill

5	Colyld	3 plants
6	—	9 —
7	—	1 —
		13 plants

Coly C 20–28 m.m long
1.6–1.8 wide
obtuse, retuse or acutish

Cover
type of young leaves x10
obtuse or acutish

Upper side

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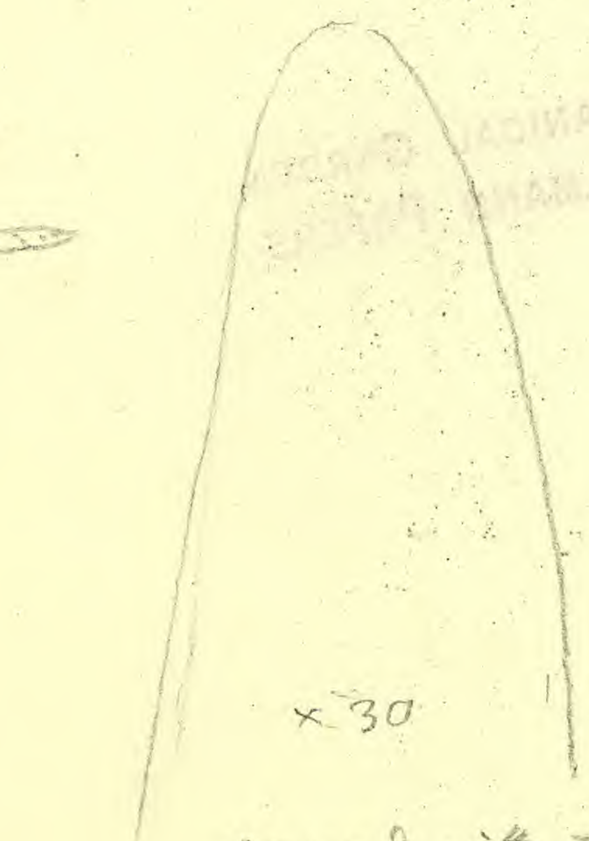
A. Connorton

Oct. 11 1875

Spring Lake Utah. S. Parry July 1875

7–8 Cotyl



× 30

round with stomata

no stomata

single vascular bundle — wood & bast cells already well developed

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WILLIAM TRELEASE HERBARIUM
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Oct 4 1878

Abies concolor

coll Waukesha, A. Dearborn (Jesup

×10

upper side of Cotyled
abt 6 series of
stomata on each
side
none below

sect. Cotyledon × 30

sect of first leaves
× 30

in both sections palisade
cells on upper surface
horizontal cells below
hypoderm only on edge below
where duct is sometimes seen ± leaf

Cotyledons

5 – 1 / spaces

6 – 3 –

upper side 7 – 4 –

4–5 rows of stom 8 spaces

young leaf ×10

first leaves alternate with cotyledons but not vertically – rather ± regular 5/8 order.

lower side

5–6 rows of stomata on each side

ARTHUR HOE HERBARIUM

ARTHUR T. HOLLISTER,

Druggist,

301 South Fifth, S. W. Cor. 5th & Myrtle, St. Louis, Mo.

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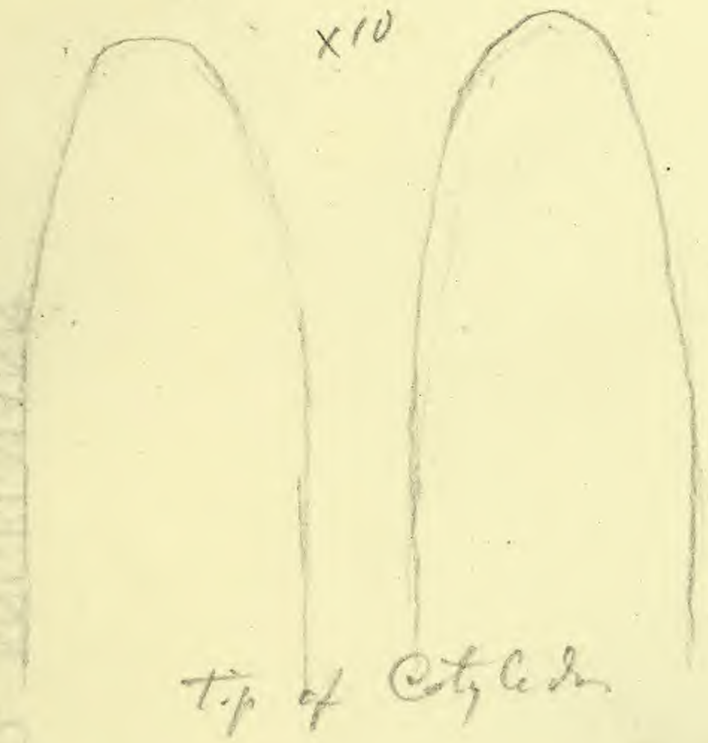
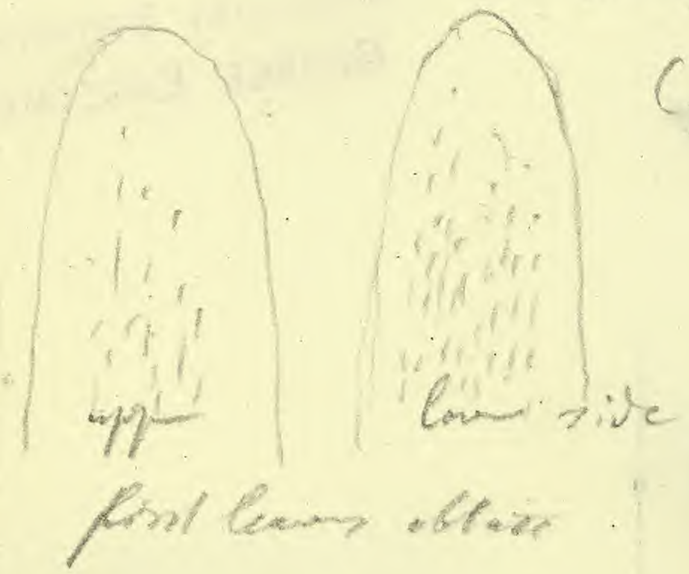
Alisma subcordatum July 21 1878

mixed by A. Douglas, Waukegan Ill

mostly 5 Cotyled.

(= 15 plants





Cotyled = 18 – 22 mm long

1.8 – 2.0 wide

obtuse, rarely retuse

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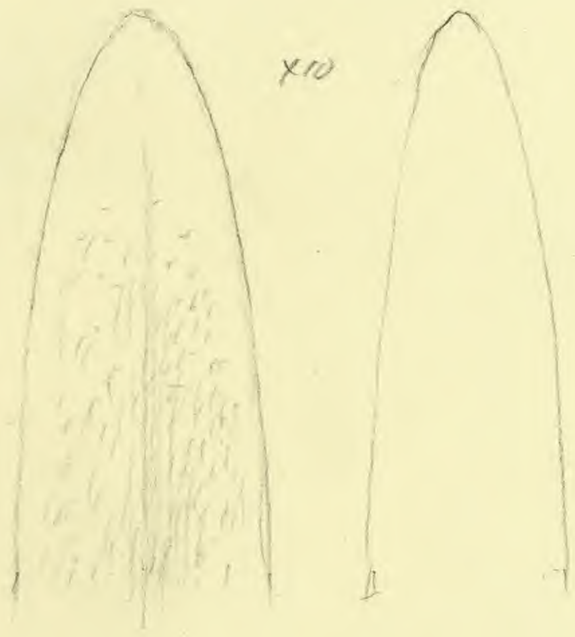
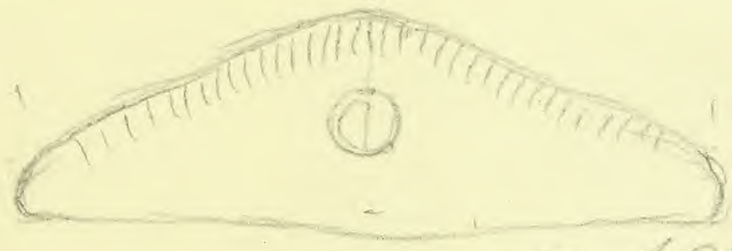
Abies balsamea fort
with Waukegan, by R Douglas

Oct 6 & 1878



Cotyledons acutish
or obtuse
not notched
above covered with stomata
next leaves same shape
with few stomata above
and two broad bands
below

very very heavy x10
acute



sect. of Cotyl x30

section with a duct

sect of
very young leaf
x30

4, or mostly 5
Cotyledons
7–10 lines long
in equal number
a verticil of first
leaves alternating
with Cotyledons
and separated by
bud scales from
following leaves

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026 1878

" A sibirica
syn Picta "

collected Wrankagen by R Douglas

no young leaves yet

4 Colyledons 6 spec
5 1
7

×10

Colyledons mostly 4,
notched

sect. of Colyledon
× 30

ARCTURUS
T. HORTICULTURAL
BOTANICAL
Col. 2nd & Main, St. Louis, Mo.

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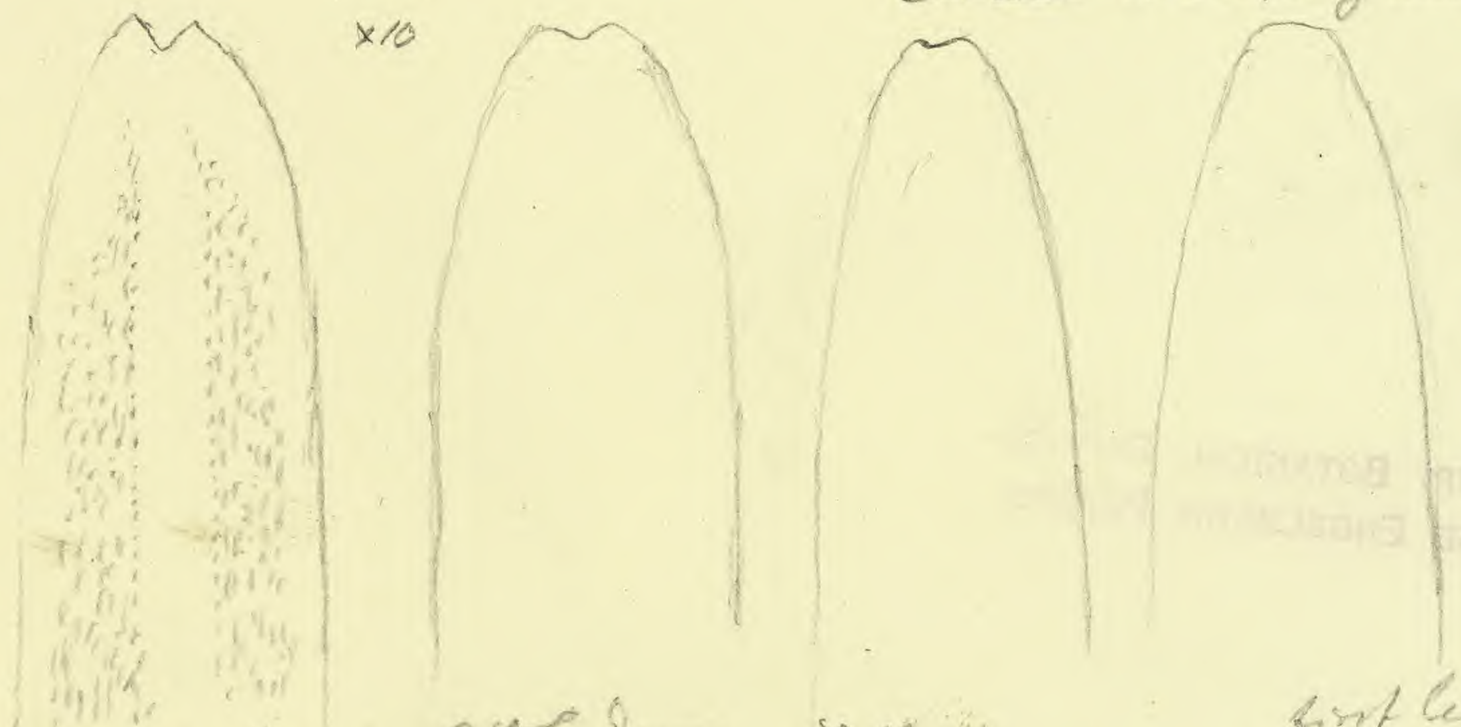
Abies Nordmanniana

Octob 4' 1878

culls Waukegan, R. Douglas Supt



×10

Different Cotyledons ×10
above to deeply notched
6–8 lines of stomata on each side
above (irregular) none below

cotyledon 1–1¼ Inch long

1 plant with 5
4 – – 6

lower side of
young leaf ×10

first leaves (two young)
notched; no stomata above
2 broad bands below

Distinguish
no vertical of 1st young leaves

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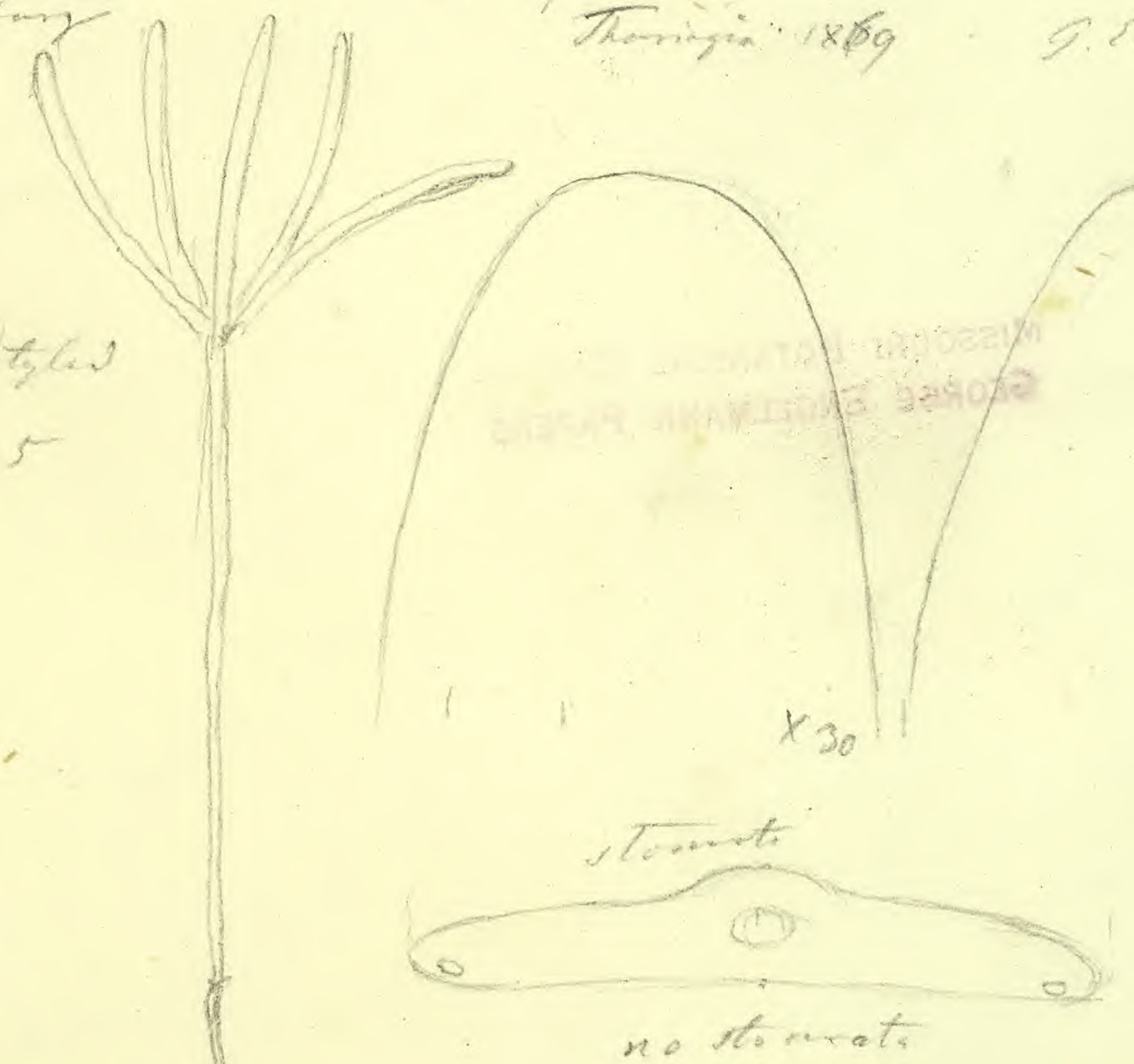
Oct 11 1875

Abies pectinata

Schwarzburg Thuringia 1869 G. Engelmann



387 Cotyledons

2 in a whorl 5

no stomata on upper side of young cotyledons

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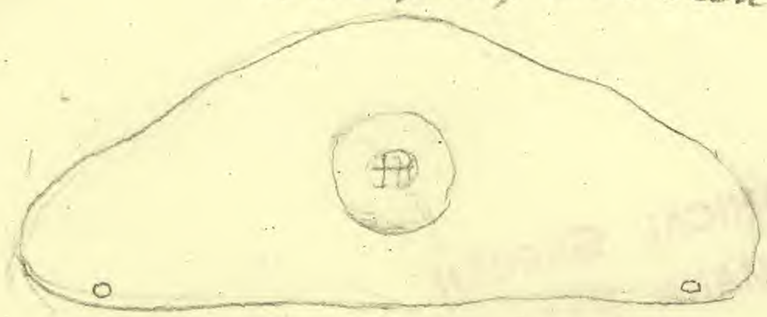
No 7

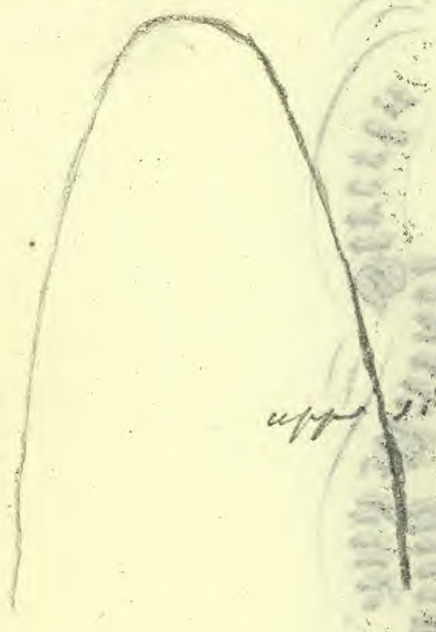
Abies Louisiana, seedling = 2 yrs April 3rd 1881
Shasta Aug 1880

no strengthening cells seen

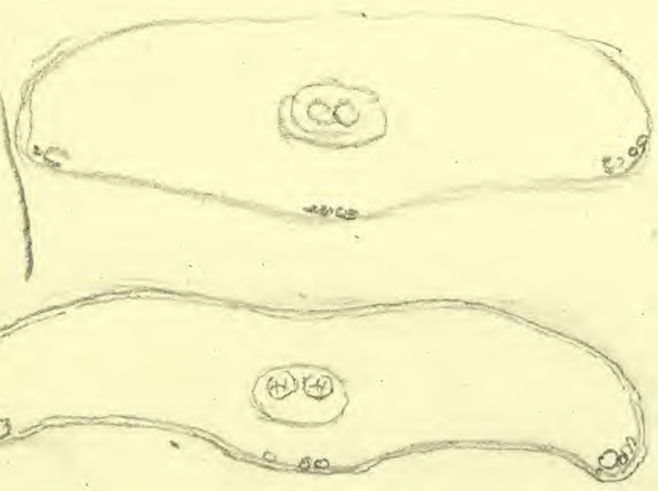


Cotyledon

× 30



upper side without stoma



older leaves of first year (the first ones

×30

young leaves in 2d year
a few strengthening cells on
edges and keel

upper side

lower side

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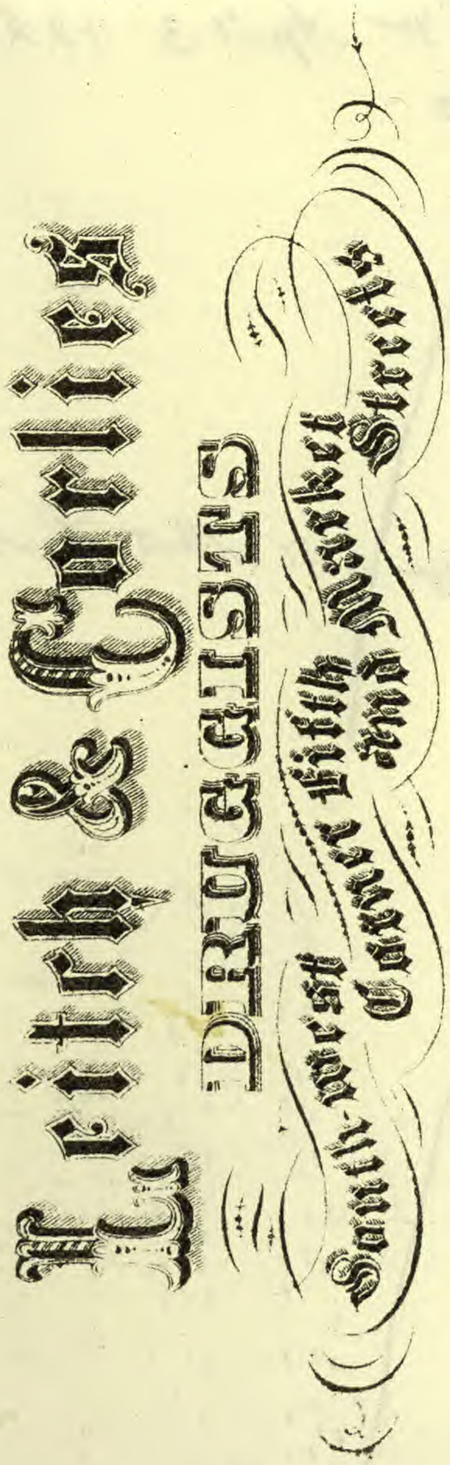

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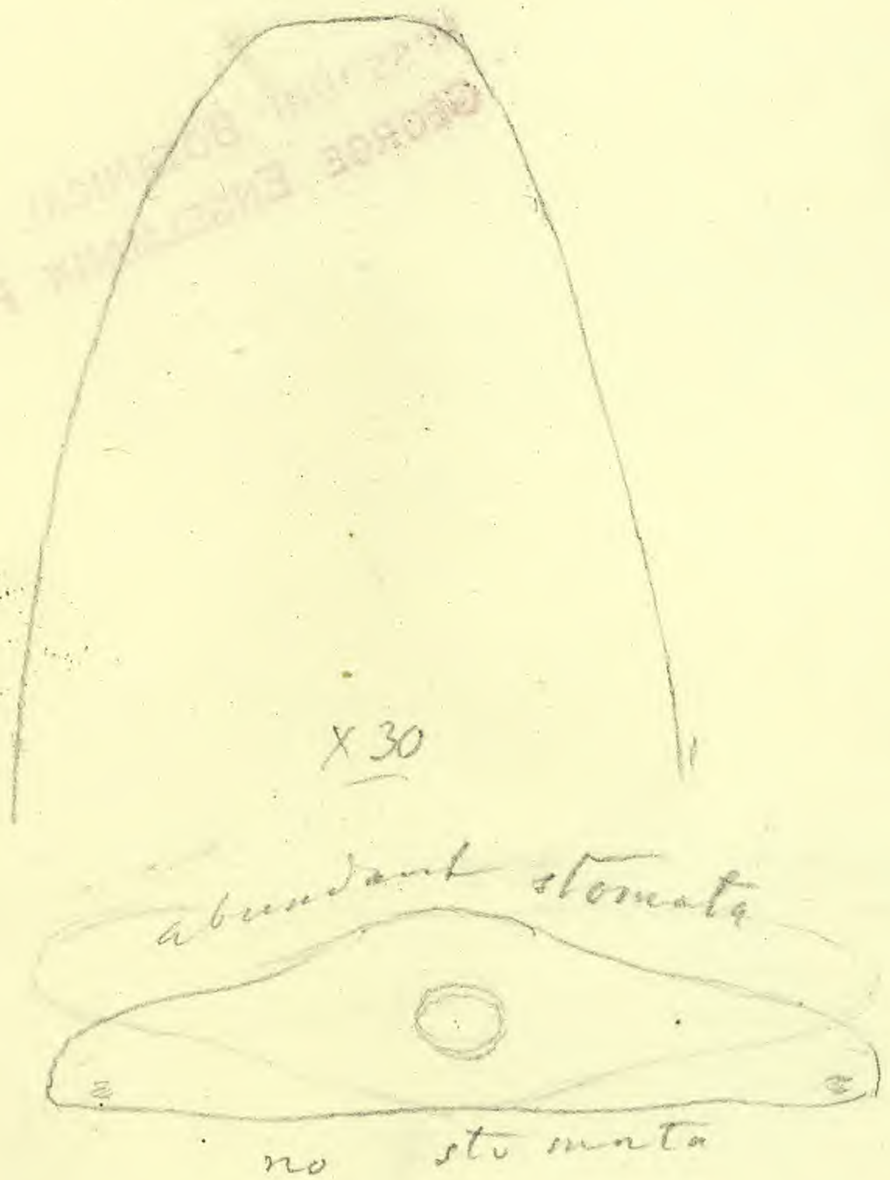
A. occidentalis subalpina Oct. 11 1875

Clear Creek, Colorado J. S. Aug. 1874

3–5 cotyl

mostly 4

young leaves with few stomata on upper side



margins not slightly undulate

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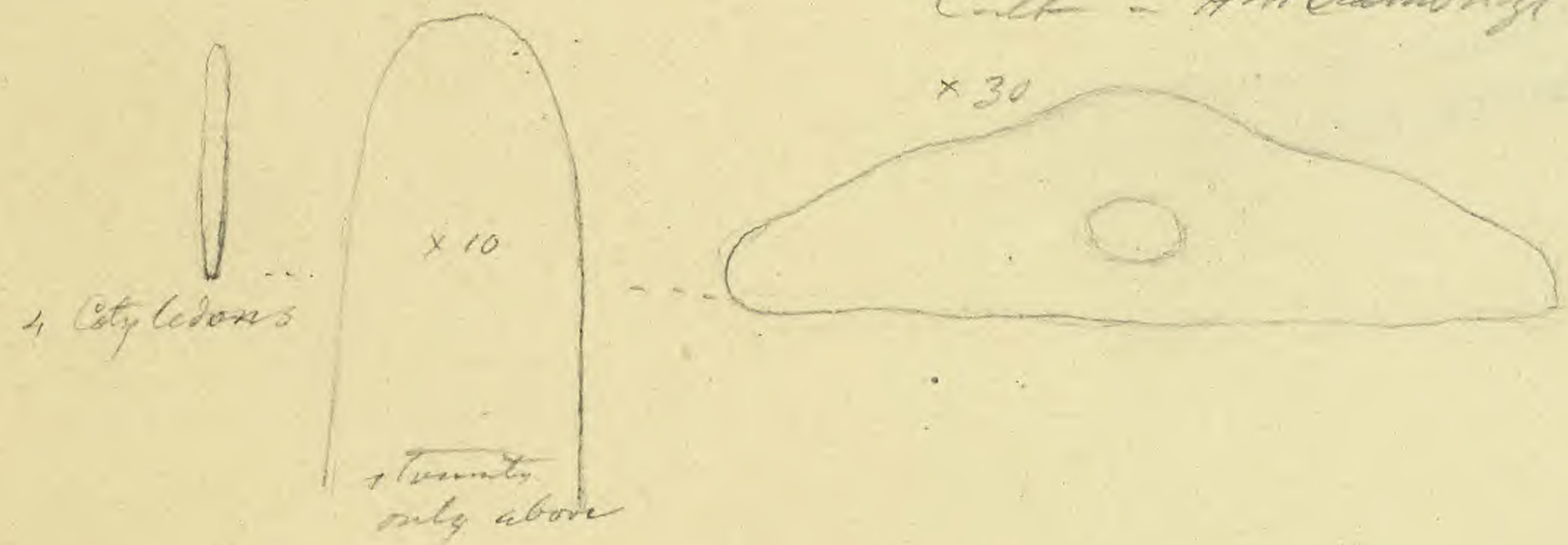
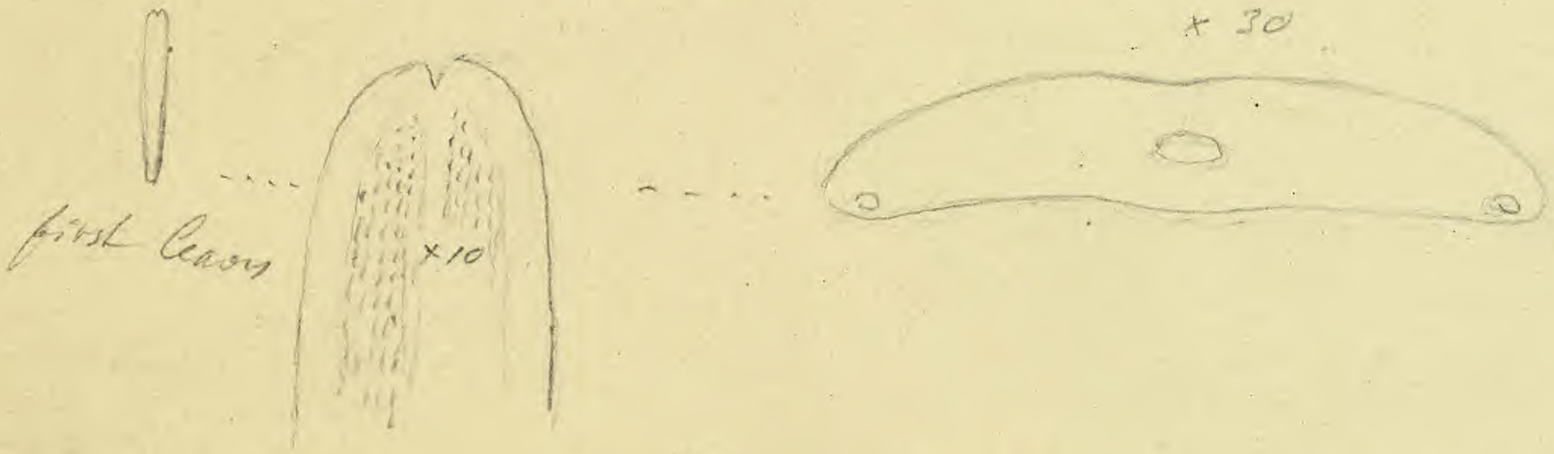
Abies sub nom. nobilis
from Oregon
Coll. = Hort Cambridge Sargent nos

Dec 22 07





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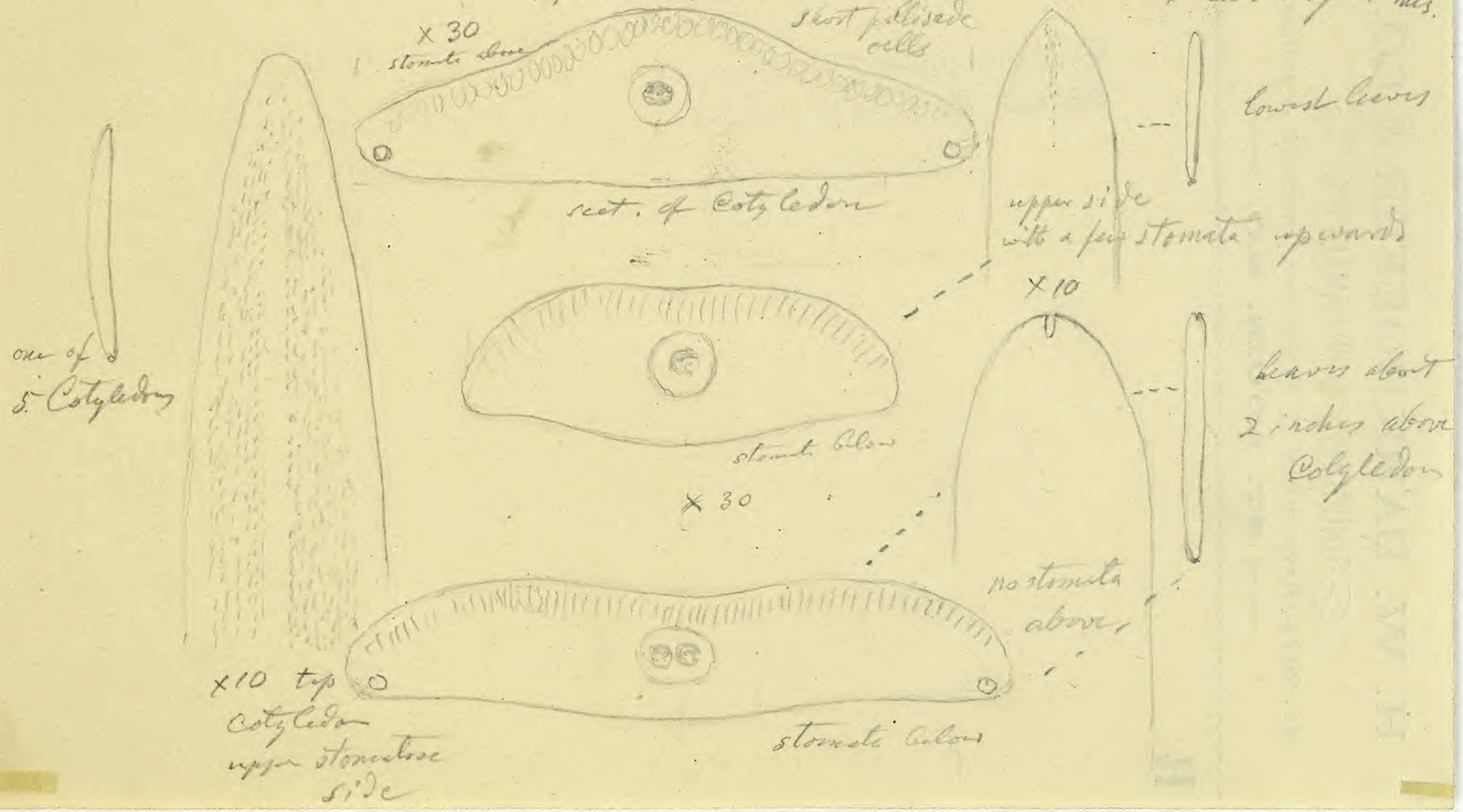
Abies grandis

from Oregon, Calk — Cambridge HD. 1878, C.S. Sargent Mrs.

Dec 14 1878



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